ABSTRACT

The invention discloses a relative structure placement of datapath of cell instances in a column structure, a row structure, or an array structure. To encourage placement of a desirable structure, pseudo cells, pseudo pins, and pseudo nets are selected to be placed at certain locations with respect to real cell instances. The end result produces a cluster of real cell instances that form a desirable structure while minimizing the length of nets. The invention further discloses a non-uniform partitioning of a density map for calculating a force update vector. The partitioning is taking over a region A to compute Riemann sum approximations of a function F over the region A. A force update vector is calculated for a given cell instance within the region A where neighboring cell instances have an exponentially larger grid size as cell instances extend further away from the given cell instance.

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